



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,021	08/21/2003	William V. Dower	58238US002	7354
32692	7590	09/24/2007		
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			EXAMINER PADGETT, MARIANNE L	
			ART UNIT	PAPER NUMBER
			1762	
			NOTIFICATION DATE	DELIVERY MODE
			09/24/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com
LegalDocketing@mmm.com

Office Action Summary

Application No.

10/645,021

Applicant(s)

DOWER, WILLIAM V.

Examiner

Marianne L. Padgett

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Art Unit: 1762

1. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

While applicant's amendments have clarified issues as set forth in section 5 of the action mailed 4/5/2007, they have also introduced new problems. In claim 1, lines 6-7, the amended phrase "...to actinic radiation at the depth from an exposure source..." does not make sense as written, as it appears to be the depth to the source of radiation. Should "at the depth" have been inserted at the beginning of this phrase, hence after "portion", so that the overall phrase would read -- exposing...immersed portion at the depth to actinic radiation from an exposure source to cure... --, which would make sense, and be consistent with the cited support of figures 1-2 & the sentence bridging pages 8-9?

In claim 4, the amendment of 6/29/2007 appears to be missing some words or something, as the words added by the amendment would make a complete sentence by themselves, but have no connecting terms, such that the beginning and end of this claim are essentially unconnected fragments or concepts. It is noted that a number of different connecting words, such as --, where -- or --, when -- or --, after --, etc. could make sense added to the amended claim 4, hence applicant's intent cannot be clearly determined.

2. Applicant's amendment to the independent claims has set up a new limitations of the depth necessarily paying below the surface of the liquid composition & that the actinic radiation exposure is occurring during the immersion, i.e. at the immersed portion, thus removing the 102 rejection over the Japanese reference to Tetsuo (JP 09-166718).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

Art Unit: 1762

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 & 9 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Inui et al. (2002/0186935 A1).

Inui et al. (935) teach providing a photopolymerizable liquid in a transparent container, where the end of an optical fiber is inserted into a forward end & fixed in place, so as to hold & immerse it in the photopolymerizable liquid. A core portion, which may also be considered a bare optical fiber, is then grown from the end of the initially immersed optical fiber, such that it is also immersed in the photopolymerizable liquid, and its end may be fixed on the opposite end of the container (or other configurations as illustrated & discussed by Inui et al. (935)), where periodic parallel retention plates may be employed to provide support & prevent deformation of the bare core. After the core formation, the photopolymerizable liquid may be replaced by a second photopolymerizable liquid, thus again immersing the optical fiber & its bare portion in the second photopolymerizable resin, which is then irradiated through the transparent container to clad the bare core in curate photopolymerizable resin, which reads on a cured immersion coated portion. See the abstract; figures; [0062-67], especially noting that figures 1-4 illustrate the process performed in a horizontal position, with the language "foreword end surface 31 of optical fiber 3", also tending to indicate a horizontal orientation, thus reading on the claimed horizontal orientation. Alternately, figure 5, discussed on [0059-60] illustrates steps of the process performed in a vertical position & the nomenclature "bottom surfaces 13 of the transparent vessel 4" would tend to indicate a vertical position, creating some ambiguity in the disclosure, which as presented does not clearly

Art Unit: 1762

necessitate either vertical or horizontal for the processes illustrated for figures 1-4, hence it would've been alternatively obvious to one of ordinary skill in the art, that as the optical fiber is adjusted in a position in the forward end surface 31 to be firmly held & that light travels a straight path through the photopolymerizable liquid, which is held in a closed container as illustrated, that the process could have been reasonably performed in either a horizontal or vertical, position, especially considering that for creation of long optical devices, the teachings take into consideration the weight of those fibers, providing support plates therefore, which further suggest the intent to perform the process in a horizontal position as illustrated.

Note that since the optical fiber is fixed to defined locations within the transparent container, that when immersed it is clearly at a predetermined distance below the surface of the liquid abutting the container wall above it.

5. Claims 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inui et al. (935).

The configuration & focus of the light source used polymerized/harden the second photo curable resin solution 7, except that [0060] suggests ultraviolet light, with exemplary source being an ultraviolet lamp & arrows (9) showing even distribution on at least two sides of the transparent container, thus it would've been obvious to one of ordinary skill the art to provide focusing means to effect distribution suggested by these teachings, especially considering that to avoid irregular curing & defects caused thereby, it would've been further obvious to one of ordinary skill & competence to provide focal means, which would have provided equal irradiation along the entire length of the fiber &/or container, where the illustrated shape would suggest a focal plane or axis centered on the fiber (centrally illustrated), known to be effectively produced by lenses, since due to the known attenuation of light when passing through a photopolymer capable of absorbing that light (i.e. being polymerized), a greater quantity of photons would have needed to be directed to the interior of the container where the fiber resides, to effect equal

Art Unit: 1762

curing about the core fiber, as at the edge of the container, in order to effect the taught curing of the classic material.

With respect to the specifically claimed immersion depth of about 0.1-0.2 mm, such dimensions would depend on the overall desired dimensions of the optical device being formed, as well as the complexity of the device. While Inui et al. (935) does not appear to have any discussions concerning specific size limitations of their devices, [0008] does mention a prior art transition line **length** of 8.5 mm, thus suggesting length dimensions on the order of millimeters, hence a narrower cladding width associated with dimensions, which would have reasonably have been expected to be inclusive of values such as applicants claimed depth, which for Inui et al.'s process would have been equivalent to cladding radius.

With respect to the cross-section of the optical devices, i.e. waveguides, formed by Inui et al.'s process, while the illustrations show a rectangular cross-section for the container with the clad core & [0016] refers to "a box of the optical waveguide device filled with the... resident liquid...", neither the term box nor container nor the illustrations require a specific shape, other than the illustrated cross-section, which would be the same for either a rectangular or a cylindrical container. Since either shape of rectangular or cylindrical are conventional effective shapes employed for waveguides, it would've been obvious to one of ordinary skill to use either such known shapes as suggested by the illustrations, hence for the obvious cylindrical option for the container, the resulting cross-section of Inui et al.'s process would have been circular. Given applicant's definition of aspect ratio being related to the deviation from circular, that deviation would have been equal to the deviation of the container, which depending on quality of optical container selected, would have reasonably have been expected to be negligible, hence reasonably have been expected to be within the claimed aspect ratio of less than about 1.4.

Art Unit: 1762

6. Other references have the disclosure is similar to Inui et al. (935) discussed above, include end we (2003/0031414 café one) & Kagami et al. (2002/0114601 A1, as well as Inui et al. (7,166,322 B2), the last of which is not prior art.

7. Applicant's arguments with respect to claims 1-11 have been considered, but are moot in view of the new ground(s) of rejection.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

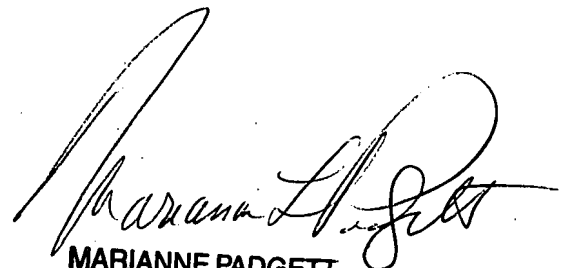
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available

Art Unit: 1762

through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP/dictation software

9/14-15/2007



MARIANNE PADGETT
PRIMARY EXAMINER